



# **SUPER** | CIRCUITS

## **High Capacity Micro DVR User Manual**

Product: MDVR16



Please read this manual before using your recorder, and always follow the instructions for safety and proper use. Save this manual for future reference.



*Operate this camera only in environments where the temperature or humidity is within the recommended range. Operation in extreme temperatures or humidity levels may cause electric shock and shorten the life of the product.*



*Avoid heavy vibration while recording, which might damage the hard disc or other components inside the unit. Data stored in the device may be corrupted due to excessive impact, lighting, power, etc. Warranty does not cover damage caused by the conditions mentioned above. Protect and back up the data in the device properly.*



*Do not apply heavy pressure onto the device. It may become damaged.*

## LEGAL NOTICE

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The recording, transmission, or broadcast of any person's voice without their consent or a court order is strictly prohibited by law.

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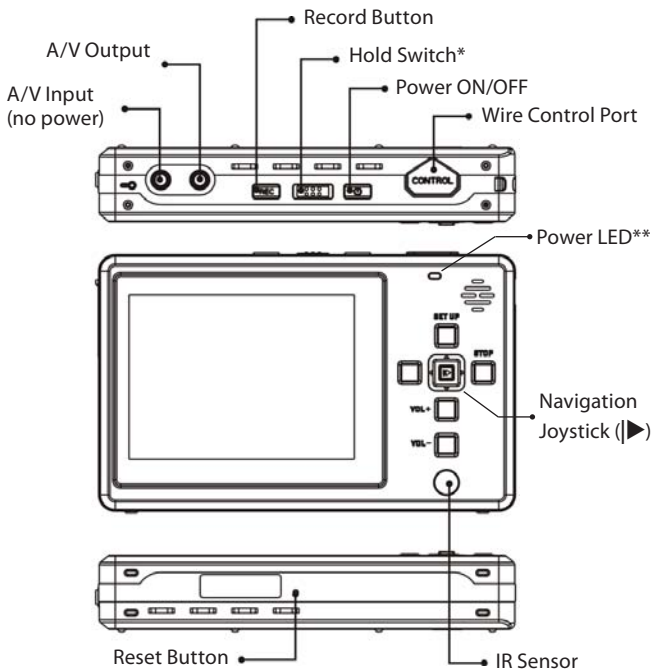
## SECTION 1

### Features

The MDVR16 high capacity micro digital video recorder is ideal for covert body worn surveillance, investigations, patrol, extreme sports, etc. It contains a 60GB micro drive that can record up to 72 hours of real time video at a resolution of 1280 x 960 (above 720p video), and overlaid with a sequential coded stamp. Off load video evidence to SD card, via USB 2.0, or playback instantly on the unit itself. It comes with a lithium battery, charger, cables, USB cable, belt ready carrying holster, IR remote control, easy to use instructions and a 1 year warranty. Features include:

- Both motion triggered and scheduled recording at 30 fps at a resolution of 1280 x 960 pixels
- High quality 3.5" color TFT display for immediate review of captured video
- 170 minute rechargeable lithium-ion battery
- Dual output power supply - DC5V, DC12V (through wire control)
- Easy to conceal, measuring 5.12" x 3.27" x 1.03"

### 1.1 DVR Controls



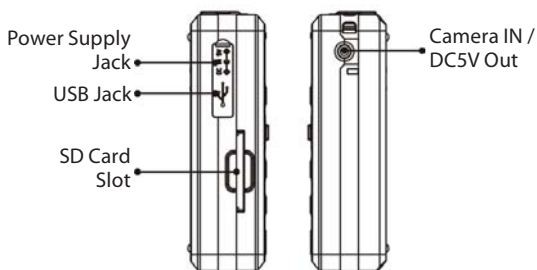


## SECTION 1: FEATURES

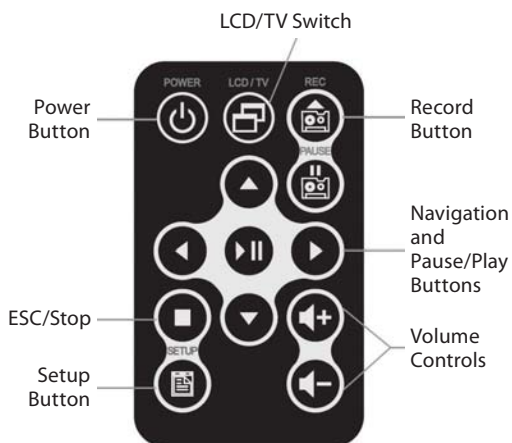
\* When the Hold switch is set, the function of other buttons on the DVR are disabled.

\*\* Power LED codes: orange – charging, green – powered on, red – recording.

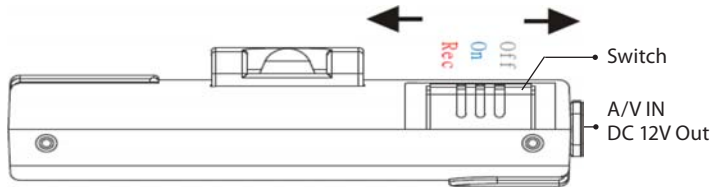
The navigation joystick can be used to move the selector by pushing it up, down, left, or right. Press the joystick down to confirm a selection.



### 1.2 Remote Control



### 1.3 Wire control



The wire control includes a single switch for powering on/off the DVR and starting/stopping a recording.

- **Power Off** – Slide the switch to **Off** to power off the device.
- **Power On** – Slide the switch to **On** to power on the device.
- **Record** – Slide the switch to **Rec** to start recording.

### 1.4 What's in the box

Your DVR includes:

- MDVR16 recorder unit
- Remote control
- Li-ion batteries (2)
- Earbud style earphone
- Pouch
- DC 5V power adapter/charger with power jack adapter
- A/V cable – stereo Y-cable mini-male (2) to 2 RCA female
- A/V cable to monitor – 3.5 mm TRRS Y-cable to 3 RCA male
- USB cable with type A and mini-B plugs
- Operations Manual
- Power source adapter
- Wire control (remote power on) switch with control cable
- A/V/power cable to camera – 2.5 mm TRRS (3 conductor) to 2 RCA female and power connector



## 1.5 Accessories



Stereo Earphones



RCA Cable



RCA Cable



RCA + Power Cable



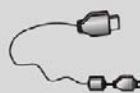
AC adaptor



Battery



User's Manual



USB Cable



Video Camera  
(Optional)



Remote Control



R/F Wireless Controller  
(Optional)



Wire Control



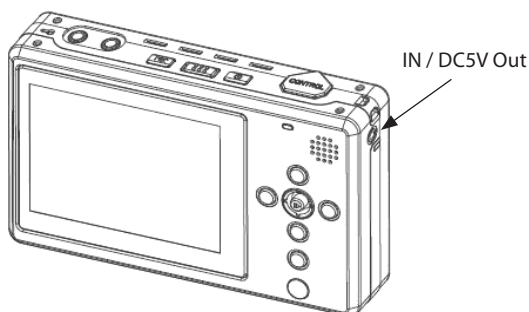
Wire Control Cable



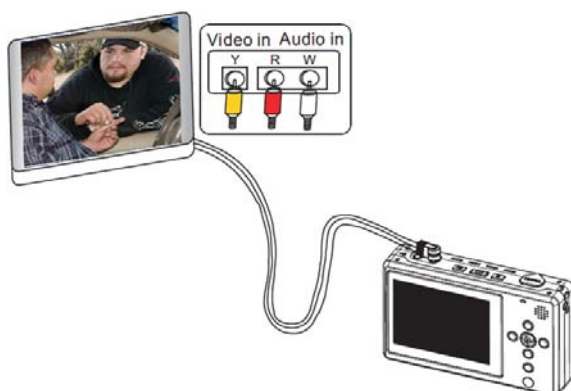
## SECTION 2

**Connecting DVR System Components****2.1 DVR connection to a camera**

To connect the DVR to a camera, plug the A/V/power cable into camera, then plug the cable mini-jack into the **Camera IN / DC5V Out** connector on the side of the DVR.

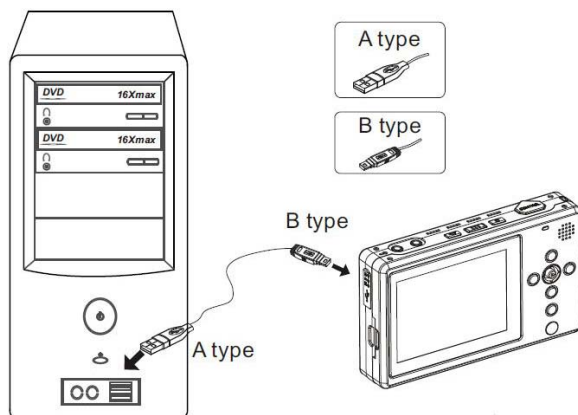
**2.2 DVR connection to a monitor**

To connect the DVR to a monitor, plug the A/V cable to monitor 3 RCA connectors into the monitor audio in left (white), audio in right (red) and video in (yellow) connectors, and then plug the cable mini-jack into the **A/V Output** connector on the DVR.



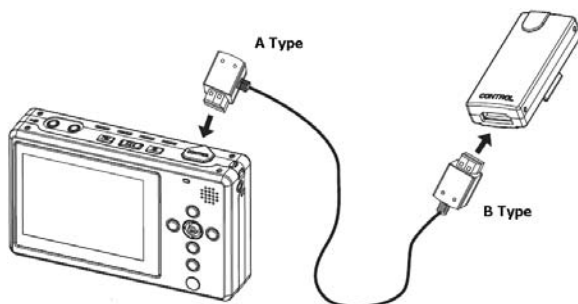
## 2.3 DVR connection to a PC

To connect the DVR to a PC, plug the USB A-type connector into the PC, and then plug the USB mini-B connector into the USB port on the side of the DVR. After the connection is made, the message “USB Mode” will appear on the DVR display. The PC connection can be used for transferring files to/from the DVR and defragmenting the DVR HDD through the Windows operating system.



## 2.4 DVR connection to a wire control

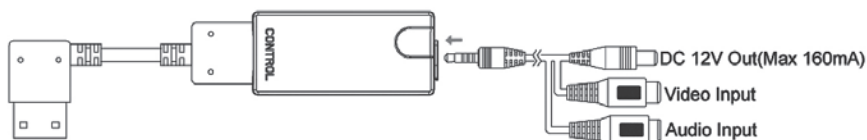
To connect the DVR to a wire control, plug the wire control cable into the wire control port on the DVR, then plug the cable into the wire control. Note that the wire control includes a port to which a camera can be attached.



When the wire control cable is plugged into the recorder, the buttons on the recorder, except for the “Hold” switch, are disabled. Use wire control switch to power on and off the DVR, and to record.

### 2.4.1 Wire control cable and camera

The wire control and cable, with the A/V power cable provided, can be used to connect a camera to the DVR and provide power to it. See the following illustration.



## 2.5 Installing the DVR battery

To install the battery in the DVR:

1. Remove the battery compartment cover on the back of the DVR.
2. Align the golden contacts of the battery supplied with the corresponding connectors in the battery compartment, then slide the battery into place.
3. Replace the battery compartment cover.

### 2.5.1 Charging the battery

Before using the DVR for the first time, charge the battery for 12 continuous hours.

When the battery power is low, the power LED blinks green and the meter icon in the lower right corner of the display shows no bars. To charge the battery:

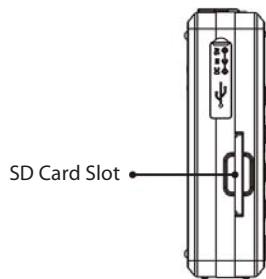
1. Plug the power adapter into the DC IN socket on the side of the MDVR16, and then plug it into an AC outlet. When the battery is charging, the orange charge LED will illuminate.
2. When the power LED extinguishes, the battery is fully charged. Disconnect the power adapter promptly.

## 2.6 Using an SD card

SD cards provide removable storage for video and log files. The SD card is enabled through the Storage Medium option in the setup menu. See the Operations section for more information.



## SECTION 2: CONNECTING DVR SYSTEM COMPONENTS



**Left side of the DVR**

### **NOTE**

*The SD card should slide smoothly into the card slot. Forcing the card into the slot can damage the card and the DVR. Make sure it is installed properly.*



## SECTION 3

# Operation

### NOTE

Screen images in this document were captured from an MDVR16 with firmware version v1.03. Depending on the firmware revision level of your DVR, the screens may be different from those shown below.

## 3.1 Turn ON/OFF the DVR

- **Turn ON:** Press the Power ON/OFF button for 1 second to power on the unit. A greeting screen will appear.
- **Turn OFF:** Press the Power ON/OFF button for 1 second to power off the DVR.



## 3.2 Function modes





Function modes include:

- **Video:** Video file playback
- **Image:** Browse images and pictures
- **Record:** External video source recording and external video source recording
- **Setting:** Function settings

### 3.2.1 Navigating menus

After powering on the DVR, the Main Menu screen will appear.

#### NOTE

*Throughout this document, rocking the DVR joystick up, down, left or right is equivalent to pressing the ▲, ▼, ◀, ▶ keys on remote control. For simplicity, the direction arrows and the term “navigation keys” refer to the same buttons. Pressing the joystick down, represented by |▶, is equivalent to pressing the ▶ || key on the remote control. Both are represented by the notation |▶ in this document.*

**To open the main menu** – Press **SET UP** on the DVR, or the **SETUP** button on remote control.

**To enter submenu** – Press |▶ to enter the submenu.

**To highlight item in the submenu** – Use navigation keys to select item.

**To confirm the setting** – Press |▶ to confirm the change of the setting.

**To not save change and return to main menu or exit SETUP** – Press **STOP**, or ■ on remote control.

**To switch to Video mode, Image and various standby modes** – Press **SET UP**, or press the **SETUP** button on remote control, to edit setting.

## 3.3 Configuration setup

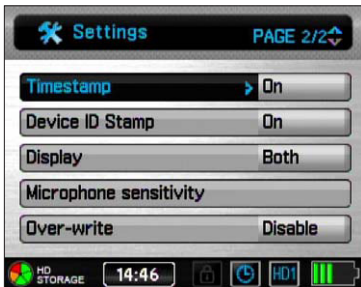
To enter the configuration setup menus while in the Main Menu, use the navigation keys to highlight **Settings**, then press |▶.

### 3.3.1 Preview

In the Settings menu, use the navigation keys to highlight **Preview**, then press |▶. After selecting your preferences, press |▶.



- Resolution (352 x 288 / 640 x 480 / 720 x 576 / 1024 x 768 / 1280 x 720 / 1280 x 960)
- Quality (Good / Normal / Low)
- Frame Rate (1 / 5 / 15 / 20 / 30)
- Audio (Enable / Disable)
- Frame Counter Stamp (On / Off)

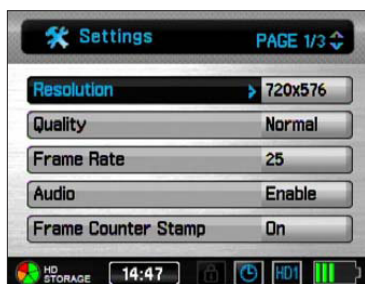


- Timestamp (On / Off)
- Device ID Stamp (On / Off)
- Display (LCD / TV / Both)
- Microphone sensitivity
- Over-write

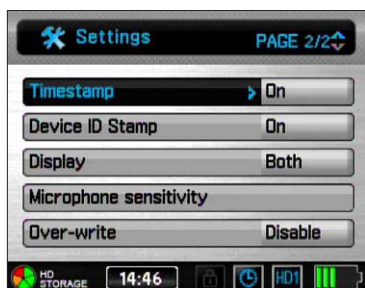
**NOTE** To enable image output, the setting: **Setting > Preview > Display**, requires a change to **TV** instead of **LCD** or **Both**.

### 3.3.2 Pre-event

In the Settings menu, use the navigation keys to highlight **Pre-event**, then press **►**. After selecting your preferences, press **►**.



- Resolution (352 x 288 / 640 x 480 / 720 x 576 / 1024 x 768 / 1280 x 720 / 1280 x 960)
- Quality (Good / Normal / Low)
- Frame Rate (1 / 5 / 15 / 20 / 30)
- Audio (Enable / Disable)
- Frame Counter Stamp (On / Off)



- Timestamp (On / Off)
- Device ID Stamp (On / Off)
- Display (LCD / TV / Both)
- Pre-Record Time (30 sec ~ 15 sec)
- Microphone sensitivity



- Over-write (Enable / Disable)

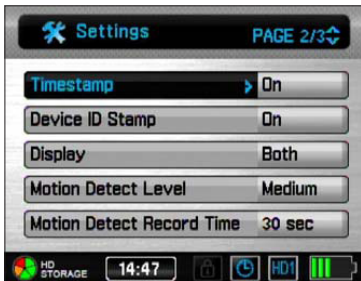
### 3.3.3 Motion Detection

In the Settings menu, use the navigation keys to highlight **Motion Detection**, then press **|▶**. Use the **▲** and **▼** keys to select an option. For each option, use the **◀** and **▶** keys to select the value of the option. After setting all the options, press **|▶** to confirm your selections.





- Resolution (352 x 288 / 640 x 480 / 720 x 576 / 1024 x 768 / 1280 x 720 / 1280 x 960)
- Quality (Good / Normal / Low)
- Frame Rate (1 / 5 / 15 / 20 / 30)
- Audio (Enable / Disable)
- Frame Counter Stamp (On / Off)



- Timestamp (On / Off)
- Device ID Stamp (On / Off)
- Display (LCD / TV / Both)
- Motion detection level (LOW / Medium / High)
- Motion Detect Record time (30 sec / 1 min / 3 min / 5 min / 10 min)



- Motion Detect Area Select
- Microphone sensitivity
- Over-write (Disable / Enable)

### 3.3.4 Set Date and Time

In the Settings menu, use the navigation keys to highlight **Date and Time**, then press **►**.

In the Date and Time submenu, use the navigation keys **▲** and **▼** to select the field, and the **◀**, **▶** keys to select the values. To confirm the settings, press **►**.



### 3.3.5 Set Date format

In the Settings menu, use the navigation keys to highlight **Date Format**. Use the ◀ and ▶ keys to select either **YYYYMMDD** or **DDMMYYYY**. To confirm your selection, press |▶.

### 3.3.6 Language

In the Settings menu, use the navigation keys to highlight **Language**. Use the ◀ and ▶ keys to select the on-screen language you prefer. To confirm your selection, press |▶.

### 3.3.7 Pre-set

In the Pre-set menus, you can set up the DVR to automatically return to recording mode.

In the Settings menu, use the navigation keys to highlight **Pre-set**. Use the ◀ and ▶ keys to select either **Normal**, **Preview**, **Pre-Event**, or **Motion Detect**. To confirm your selection, press |▶.

### 3.3.8 Resume period to pre-set

In the Resume period to pre-set menus, you can set up the timing to return to recording mode.

In the Settings menu, use the navigation keys to highlight **Resume period to pre-set**. Use the ◀ and ▶ keys to select the timing level you prefer. Selections are **15 sec** / **30 sec** / **No**. To confirm your selection, press |▶.

### 3.3.9 Timer recording

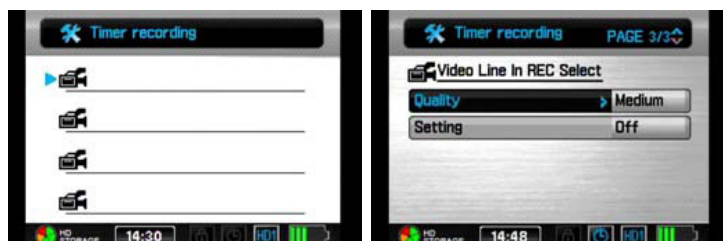
In the Timer recording menus, you can set up a schedule to record at a specific time. If the unit is powered off when it is scheduled to record, it will power itself on, record during the preset schedule, then power itself off.

In the Settings menu, use the navigation keys to highlight **Timer recording**, then press |▶.

In the Timer Recording Video Line In REC Start and Stop screens, use the ▲ and ▼ keys to select the **Year**, **Month**, **Date**, **Hour**, and **Minute** options and use the ◀ and ▶ keys to change the value of each as desired. When the values for all options are set, press |▶ to confirm.



Assign the schedule you created to a camera icon on the schedule screen. Highlight that icon and press ► to open the Video Line In REC Select (Timer Recording 3/3) screen. Use the navigation keys to select the preferred **Quality** level, and set the **Setting** entry to ON. Press ► to confirm your selections and enable the recording schedule.



## Set Backlight Timeout

In the Backlight timeout submenu, you can specify the duration of the backlight timeout.

In the Settings menu, use the navigation keys to highlight **Backlight Time-out**. Use the left or right navigation keys to select either **N0**, **30 sec**, **1 min**, or **3 min**. To confirm the selection press ►.

### 3.3.10 Storage medium option

The storage medium option allows you to specify where to store files: either to HDD or SD card.

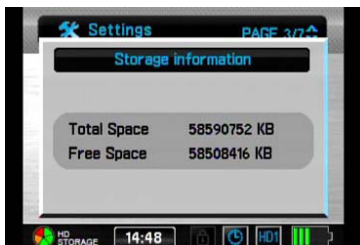
In the Settings menu, use the navigation keys to highlight **Storage Medium Option**. Use the ◀ and ▶ keys to select either **HDD** or **SD**. To confirm the selection press ►.



### 3.3.11 Storage information

Opening the storage information screen displays the available space on the storage medium.

In the Settings menu, use the navigation keys to highlight **Storage information**, then press **▶**. Press **STOP** to return to the previous screen.



### 3.3.12 Storage capacity

To show the storage capacity icon on the display, it must be enabled.

In the Settings menu, use the navigation keys to highlight **Storage capacity**. Use the left or right navigation keys to choose On or Off, then press **▶**. Press **STOP** to return to the previous screen.

### 3.3.13 Format memory

Format Memory allows you to reformat your storage media. When the storage media is reformatted, all data on the media is erased.

In the Settings menu, use the navigation keys to highlight **Format memory**. Use the left or right navigational keys to elect either **HDD** or **SD**, then press **▶**. Press **▶** again to begin the formatting process.



### 3.3.14 TV out setting

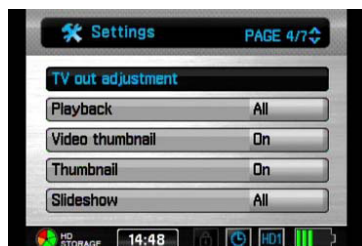
Use TV out setting to set the format of the TV.

In the Settings menu, use the navigation keys to highlight **TV-out setting**. Use the left or right navigational keys to elect either **NTSC** or **PAL**, then press **►**.



### 3.3.15 TV out adjustment

In the Settings menu, use the navigation keys to highlight **TV out adjustment**, then press **►**. In the submenu, use the **◀** and **►** keys to select a TV out zooming preference, then press **►**.





### 3.3.16 Playback

Use Playback to set the repeat mode for playing a video file.

In the Settings menu, use the navigation keys to highlight **Playback**. Use the ◀ and ▶ keys to select either **All**, **No**, or **Single**, then press |▶.

### 3.3.17 Video thumbnail

Use Video thumbnail to enable an image preview when reading video files.

In the Settings menu, use the navigation keys to highlight **Video thumbnail**. Use the ◀ and ▶ keys to select either **All**, **No**, or **Single**, then press |▶.

### 3.3.18 Thumbnail

Use Thumbnail to enable an image preview when reading picture files.

In the Settings menu, use the navigation keys to highlight **Video thumbnail**. Use the ◀ and ▶ keys to select either **On** or **Off**, then press |▶.

### 3.3.19 Slideshow

Use Slideshow to enable a slide show.

In the Settings menu, use the navigation keys to highlight **Slideshow**. Use the ◀ and ▶ keys to select either **All** or **No**, then press |▶.

### 3.3.20 Slideshow period

Use Slideshow to choose the pause time on each slide when playing a slide show.

In the Settings menu, use the navigation keys to highlight **Slideshow period**. Use the ◀ and ▶ keys to select either **3 sec**, **5 sec**, **7 sec**, or **10 sec**, then press |▶.

### 3.3.21 Firmware upgrade

Use Firmware upgrade to change the firmware in the DVR.

In the Settings menu, use the navigation keys to highlight **Firmware upgrade** then press ►.

Insert an SD memory card with the updated firmware file into the device. Select **OK** to start upgrade. When upgrade is completed, the system will reboot. If the message “**Update Error**” appears during updating, the process failed. A typical cause for this problem is either that the software is incomplete or the memory card is damaged. Use a different memory card, or reboot the device after inserting the memory card with the firmware file.



### 3.3.22 Restore factory settings

Restore factory settings reverts all configuration settings to their default values.

In the Settings menu, use the navigation keys to highlight **Restore factory settings**, then press ►. When the warning screen appears, highlight **OK**, then press ►.



### 3.3.23 Device on password

Use the Device on password feature to lock the DVR without entry of a password.

In the Settings menu, use the navigation keys to highlight **Device on password**. Use the ◀ and ▶ keys to select **ON**, then press ►.

To disable this lock, set the Device on password option to **Off**, then press ►.



### 3.3.24 Set device on password

Use the Set device on password feature to specify the password for unlocking the DVR.

In the Settings menu, use the navigation keys to highlight **Device on password**, then press **►**. In the pop-up window, use the navigation keys to enter the device password, then press **►**. In the Confirm Device Password field, re-enter the password, then press **►**.



### 3.3.25 USB connect password

Use the USB connect password to enable a device lock when reading data through the USB port.

In the Settings menu, use the navigation keys to highlight **USB connect password**. Use the **◀** and **►** keys to select **ON**, then press **►**.

To disable this lock, set the USB connect password option to **Off**, then press **►**.

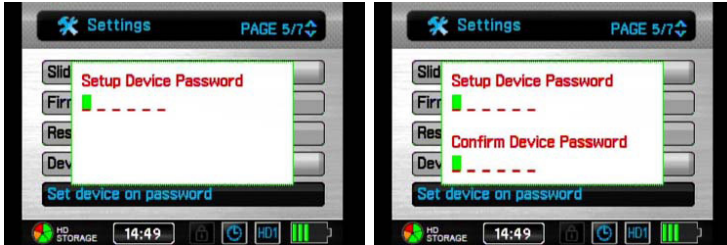


### 3.3.26 USB connection password

Use the USB connection password menu to specify the password for unlocking USB port.



In the Settings menu, use the navigation keys to highlight **USB connection password**, then press **►**. In the pop-up window, use the navigation keys to enter the device password, then press **►**. In the Confirm Device Password field, re-enter the password, then press **►**.



### 3.3.27 Device history log file

Use this option to enable the device history logging. The device history log includes all activity including USB plug-in/plug out, and playback.

In the Settings menu, use the navigation keys to highlight **Device History log file**. Use the **◀** and **►** keys to select **ON** or **OFF**, then press **►**.

To disable this feature, set the Device history log file option to **Off**, then press **►**.

### 3.3.28 Check log

The Check log option is used to view the device history log.

In the Settings menu, use the navigation keys to highlight **Check log**, then press **►**. A pop-up window will open showing the log file. Press **STOP** to close the window.

```
Device ID : KAJE-0017
Date : 2009-06-25

AM-08-17-04:Power On
AM-08-17-28:Start Video Decoding
AM-08-17-34:Stop Video Decoding
AM-08-18-26:Power Off

Date : 2009-06-25
AM-11-03-50:Power On
```



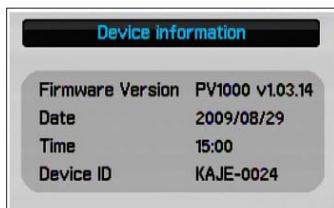
### 3.3.29 Save all logs

Use this option to choose the storage media where logs are written.

In the Settings menu, use the navigation keys to highlight **Save all logs**. Use the ◀ and ▶ keys to select either **HDD** or **SD**, then press ▶.

### 3.3.30 Device information

Use this option to open the Device information window. The device information window shows the firmware level, date, time, and device ID. In the Settings menu, use the navigation keys to highlight **Device information**, then press ▶. To close this window, press **STOP**.



## SECTION 4

## Video Playback

## 4.1 Play a video file

All the recorded files are stored in the IMAGE/VIDEO folder. The player can distinguish an unlimited number of files/folders. However, within a folder, only up to 999 files can be distinguished.

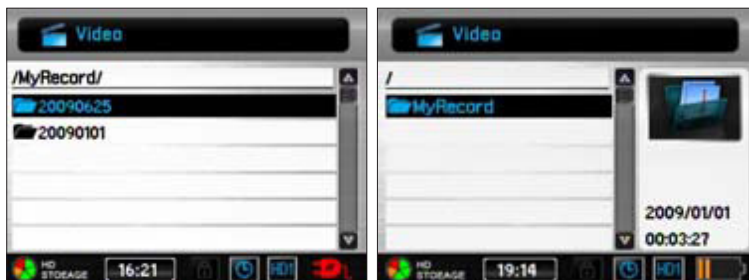
**NOTE** *If the file is corrupted, it cannot be played. The system will return to the file list mode.*

In the Main Menu, use the navigation keys to select **Video**, then press ►. Use the ▲ and ▼ keys to highlight the file to play, then press ►.



Press **STOP** to stop playing the file.

Press **STOP** to list files by date (highlight the file, then press ► to play the file). Press **STOP** again to move to the top of the MyRecord directory (move higher in the directory tree).



## 4.2 Fast playback

To double (2X) the playback speed, press ► during normal playback. Press ◀► to return to normal playback speed.



To playback at 4X speed, press ► during 2X playback. Similarly, to playback video at 8X speed, press ► during 4X playback speed. Press ◀► to return to normal playback speed.

## 4.3 Slow motion playback

During normal speed playback, pause the player by pressing the ◀ key. To slow video playback to 1/2 speed, press the ► key. To return to normal speed, press the ◀ key again.



To playback at 1/4 speed during playback at 1/2 speed, press ► again. Similarly, to playback video at 1/8 speed, press the ► key during playback at 1/4 speed. Press the ► key to return to normal speed.

## 4.4 Reverse playback

During normal speed playback, to reverse playback at 2X speed, press the ◀ key. To return to normal forward playback speed, press ►.



To reverse playback at 4X speed, press the ◀ key during reverse playback at 2X speed. Similarly, to reverse playback at 8X speed, press the ◀ key during reverse playback at 4X speed. Press the ► key to return to normal forward playback speed.

## 4.5 Pause playback

While a video file is playing at normal speed, pause playback by pressing the ► key.

## 4.6 Stop playback

To stop playing the file and return to the file list, press the ■ (STOP) key.



### 4.7 Capture image during video playback

To capture an image while video is playing, press the **▶** key to pause the video, then press the **STOP** key on the DVR to take a snapshot (the remote control cannot be used to capture images). Press the **▶** key again to continue playing the video at normal speed. The captured pictures are stored in an image file.

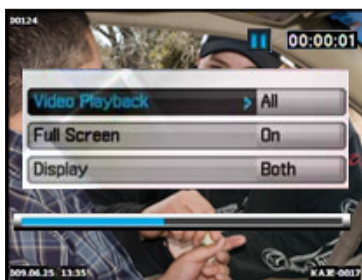


## SECTION 5

## Video Playback Settings

## 5.1 Video control during video playback

To change the video configuration options during video playback, press **SETUP** to pause the video and open the options list. Use the navigation keys to select values for each option as necessary. Press **STOP** to continue playback.



- Video Playback (All / Single / No)
- Full Screen (On / Off)
- Display (LCD / TV / BOTH)

## 5.2 Video management in the file list

To change the configuration options while in the file list screen, press **SETUP** to open the options menu. Use the navigation keys to select values for each option as necessary. Press the **▶** key to confirm your selections and continue.



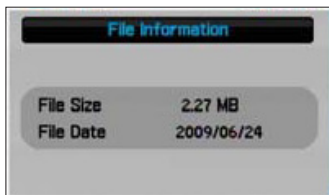
- Video Playback (All / Single / No)
- Video Thumbnail (On / Off)
- Delete (One / All)
- Protect (On / Off)
- Copy (One / All)



## SECTION 5: VIDEO PLAYBACK SETTINGS



- MOVE (One / All)
- File Information – opens the file information window (see below)





## SECTION 6

## Image Browsing

## 6.1 Opening an image

In the Main Menu, use the navigation keys to select **Image**, then press the **|▶** key. Use the **▲**, **▼**, **◀**, and **▶** keys to frame (select) the photo image you want to open. Press the **|▶** key to open the image.



Press **STOP** to return to the Image thumbnail screen. Press **STOP** again to list the image folders by date. Use the **▲** and **▼** keys to select a folder, then press the **|▶** key to open the folder.



## 6.2 Zoom image

To zoom in by 2X on an image you are viewing, press the **|▶** key. When the image is enlarged, use the **▲**, **▼**, **◀**, and **▶** keys to move to different parts of the image.



To double the zoom to 4X, press the **|▶** key again.

### 6.2.1 Slideshow with image selected

With an image selected in the file list, press **SETUP** to open the Image options list. Use the **▲**, **▼**, **◀**, and **▶** keys to select values for each option. Highlight **Slideshow Start**, then press the **|▶** key to begin the slideshow.



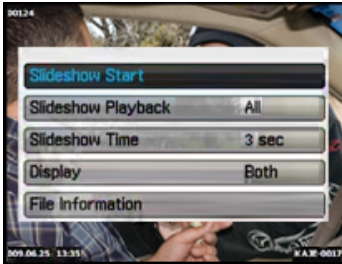
- Slideshow Start
- Thumbnail Preview (On / Off)
- Delete (One / All)
- Protect (On / Off)
- Copy (One / All)



- Move (One / All)
- Slideshow Playback (All / No)
- Slide Show Time (3 sec / 5 sec / 7 sec / 10 sec)
- File Information – opens the file information window)

## 6.2.2 Slideshow while browsing an image

While browsing an image, press **SETUP** to open the options list. Use the navigation keys to select values for each option. Highlight **Slideshow Start**, then press the **|▶** key to begin the slideshow.



- Slideshow Start
- Slideshow Playback (All / No)
- Slide Show Time (3 sec / 5 sec / 7 sec / 10 sec)
- Display (LCD / TV / BOTH)
- File Information – opens the file information window)

## 6.2.3 Slideshow while in the file list

While in the file list, press **SETUP** to open the Image options list. Use the navigation keys to select values for each option. Highlight **Slideshow Start**, then press the **|▶** key to begin the slideshow.



- Slideshow Start
- Thumbnail Preview (On / Off)
- Slideshow Playback (All / No)
- Slide Show Time (3 sec / 5 sec / 7 sec / 10 sec)



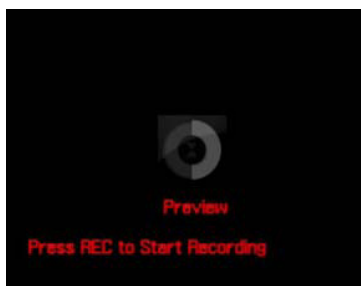
## SECTION 7

### Record

To record video, connect a camera to the Video In jack, then select Record from the Main Menu.



Use the ▲ and ▼ keys to highlight **Preview**, then press the ► key to see the image from the camera.



**Preview with no image from camera**

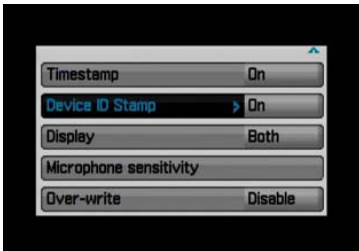
After previewing the image from the camera, press **REC** to start recording. Press **STOP** to end the recording.

### 7.1 Preview

To configure the Preview settings, press **SETUP** while in Preview mode. Use the navigation keys to select values for each option. Press the ► key to confirm your selections and close the settings window.



- Resolution (352 x 288 / 640 x 480 / 720 x 576 / 1024 x 768 / 1280 x 720 / 1280 x 960)
- Quality (Good / Normal / Low)
- Frame Rate ( 1 / 5 / 15 / 20 / 30)
- Audio (Enable / Disable)
- Frame Counter Stamp (On / Off)



- Timestamp (On / Off)
- Device ID Stamp (On / Off)
- Display (LCD / TV / Both)
- Microphone sensitivity
- Over-write (Enable / Disable)

Press the **STOP** button to return to the Record submenu.

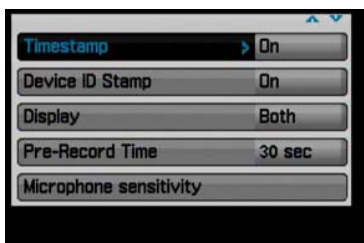
## 7.2 Pre-Event

In the Record submenu, use the ▲ and ▼ keys to highlight **Pre-Event**, then press ►. In Pre-Event mode, the video image is automatically recorded to a Video file without pressing the **REC** button.

To configure the Pre-event settings, press **SETUP**. Use the navigation keys to select values for each option. Press the ► key to confirm your selections and close the settings window.



- Resolution (352 x 288 / 640 x 480 / 720 x 576 / 1024 x 768 / 1280 x 720 / 1280 x 960)
- Quality (Good / Normal / Low)
- Frame Rate ( 1 / 5 / 15 / 20 / 30)
- Audio (Enable / Disable)
- Frame Counter Stamp (On / Off)



- Timestamp (On / Off)
- Device ID Stamp (On / Off)
- Display (LCD / TV / Both)
- Pre-Record Time (30 sec / 15 sec)
- Microphone sensitivity



- Over-write (Enable / Disable)

Press **STOP** to return to the Record submenu.

**NOTE** In Pre-Event mode, the video image is automatically recorded to Video file without pressing the REC button.

## 7.3 Motion Detection

In the Record submenu, use the ▲ and ▼ keys to highlight **Motion Detection**, then press ►.

In Motion Detection mode, press **REC** to begin recording. If the recording environment is still, recording will stop. When motion is detected in the motion detection zones, the DVR will start recording.



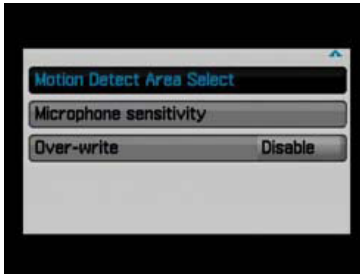
To configure the Motion Detection settings, press **SETUP**. Use the navigation keys to select values for each option. Press the **►** key to confirm your selections and close the settings window.



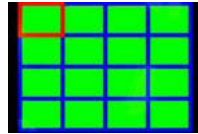
- Resolution (352 x 288 / 640 x 480 / 720 x 576 / 1024 x 768 / 1280 x 720 / 1280 x 960)
- Quality (Good / Normal / Low)
- Frame Rate ( 1 / 5 / 15 / 20 / 30)
- Audio (Enable / Disable)
- Frame Counter Stamp (On / Off)



- Timestamp (On / Off)
- Device ID Stamp (On / Off)
- Display (LCD / TV / Both)
- Motion Detection Level (High / Medium / Low)
- Motion Detect Record Time (30 sec / 1 min / 3 min / 5 min / 10 min)



- Motion Detect Area Select (press ► to setup motion detection screen zones)



- Microphone sensitivity
- Over-write (Enable / Disable)

### 7.4 Video image capture during record

While recording, you can save a snapshot of the current frame. Press **STOP** to take the snapshot and save it in the image file directory.







## SECTION 8

# Specifications

**Table 1. General specifications**

Item	Specification
Display	3.5" RGB 320 x 240 Color TFT LCD with LED backlight
Video System	NTSC / PAL Auto Detection
Record Mode	Normal / Motion Detection / Pre-Event
Maximum Resolution	1280 x 960
Resolution Modes	320 x 240 / 640 x 480 / 720 x 576 / 1024 x 768 / 1280 x 720 / 1280 x 960 Real Time
Frame Rate	1 / 5 / 10 / 20 / 30 fps, adjustable
Video Format	MPEG-4 ASF (Windows® Media Player supported)
Picture Format	JPEG < 4032 x 4032 pixels
Storage	Built-in 60GB* HDD and SD Card (supports up to 32GB SDHC)
Time Stamp Format	YYYY/MM/DD or DD/MM/YYYY
Frame Counter	Yes
PC Interface	USB 2.0
DC12V to Camera	DC12V 160 mA Max (through remote switch)
DC5V to Camera	DC5V 250 mA Max
Battery Type	Removable 3.7 V / 2200 mA Lithium Battery
Battery Recording Time	170 minutes
Current Consumption	650 mA
Power Supply	DC5V 2A
Dimensions	5.12 x 3.27 x 1.03 in (130 x 83 x 26 mm)
Weight	7.09 oz / 9.03 oz with battery

\* Units built after August, 2010 contain a 120GB HDD.

**Table 2. Supported video file formats\***

File Format	Resolution (< 1280 x 960)	Bit Rate (< 10 Mbps)	Frame Rate (< 30 fps)
AVI (DivX 4/5.0)	No	No	No
AVI (DivX 2/3)	No	No	No



## SECTION 8: SPECIFICATIONS

File Format	Resolution (< 1280 x 960)	Bit Rate (< 10 Mbps)	Frame Rate (< 30 fps)
MPEG (DAT, MPG-VCD file format)	No	No	No
ASF (MPEG-4)	Yes	Yes	Yes
RM	No	No	No
WMV	No	No	No
VOB (DVD file format without copy protection)	No	No	No
MJPEG (AVI)	a-law, u-law		

\* No indicates that the format cannot be played directly, and cannot be converted.